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Studies on involvement of women and their contribution share in sericulture activities

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ABSTRACT

Sericulture, a rural enterprise, participation of women is higher. Availability of facilities at the woman sericulture respondents on their land holding, mulberry areas and rearing houses revealed that 23% of the respondents were having less than 0.5 acre of land, 47% with more than 0.5 acre to 1.0 acre, 23% with more than 1.0 acre to 2.0 acres and 7% were having more than 2.0 acres of land holding. Low level of literacy, lack of awareness on the improved technologies of mulberry cultivation and silkworm rearing, poor level of perception on the technologies and lack of empowerment are identified as the major constraints faced by the women for sericulture development. The women respondents in various sericulture activities provide ample scopes for their development and capacity building through imparting training, demonstration, awareness of technologies, processes, techniques etc. and guiding them for socio-economically upliftment in the region and the sericulture scenario in the country as well.

Key words: Capacity building, mulberry, silkworm, woman empowerments

Sericulture "the production of silk" has been recognized as an agro-based rural industry since time immemorial in different countries. Silk "the textiles Queen" is secreted by the silkworms, is made up of proteins namely *fibroin* which constitutes the core of the fibre and the *sericin*, a gummy substance that encases the fibroin. India is unique in producing all the four commercial varieties of silk namely Mulberry (B*ombyx mori*), Tasar (*Antheraea proylei*), Muga (*Antheraea assamensis*) and Eri (*Samia ricini*) and stands second largest producer with 19690 mt (2009-10) in the world accounting for about more than 14% of total world raw silk production. In sericulture both on-farm i.e. management and cultivation of host plants for silkworms and off-farm activities i.e. rearing of silkworms feeding the foliage of host plants being involved, becomes a labour intensive rural avocation. In India, mulberry sericulture covers 25 states in the country and is practiced in about 0.54 lakh villages, occupying more than 1.8 lakh hectares employing about 7 million people, mainly the rural populace (Anon, 2010). A huge manpower is required for sericulture activities throughout the year and the sericulture farmers utilize their family members particularly the aged persons and women folk in it. Although the women in agricultural families perform many farm related activities, the pattern of division of labour between men and women varied greatly from regions and activities. Women are involved in most of the operations in agriculture, including subsidiary enterprises like diary, poultry, beekeeping, mushroom cultivation, sericulture, fish culture, social forestry etc. (Bajwa, 1983; Prasad and Chandra, 1991). The importance of sericulture in rural development and utilization of rural women labour force in sericulture is well talked about, but information on extent of women participation, women as sericulture entrepreneur and technologies best suited for women are not well documented. In this context a study was conducted in order to assess the works performed by the women in sericulture.

MATERIALS AND METHODS

The study was conducted in traditional sericultural districts namely Murshidabad and Malda of West Bengal where most of the farmers' practice sericulture and in the non-traditional sericultural states namely Meghalaya and Tripura. Two blocks, Panchgram in Murshidabad and Kaliachok –I in Malda were selected as the major sericulture areas in the district. In Tripura, Bishalgarh district and for Meghalaya, the Jayantia hills were taken for the study. A total of thirty women sericulture farmers, comprising of fifteen farmers from three villages *viz.*, Sharvanagar, Shantipara and Bourdanga of Panchgram block, five farmers from Kaliachok –I block and ten farmers each from Bishalgarh in Tripura and Jayantia in Meghalaya respectively, were randomly selected.

A pre-tested structured questionnaire was prepared considering different parameters relating to sericulture activities such as, socio-economic profile of the respondents, participation in various activities of mulberry cultivation and silkworm rearing and knowledge on sericulture improved technologies. Data were collected at farmers' level by personal interview method for Murshidabad and Malda districts in West Bengal and by postal interview for Tripura and Meghalaya through field functionaries during the year 2010. Data were processed, computed, analyzed and interpreted.

RESULTS AND DISCUSSION

Data collected on socio-economic profile and other information interviewing the women of the sericulture families through 'Structured questionnaires" on the variables such as, age group, religion, level of literacy, land holding, facilities

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available for sericulture, cosmopoliteness and involvement in other businesses revealed that distribution of age group of family members of the woman sericulture respondents was 36.2% males and 33.9% females of above 18 years while the male and female with below 18 years were 15.3% and 14.6% respectively. However, most of the woman respondents were in the middle age group ranging between 37 and 49 years. About 45% of the total respondents belong to Muslim, 30% Hindu & 25% in Christian communities with 70% Muslim & 30% Hindu in Murshidabad; 90% Muslim & 10% Hindu in Malda; 100% Christian in Meghalaya and 15% Muslim & 85% Hindu in Tripura. Literacy level of the respondents was "Primary" (47%) followed by "Just literate" (25%), "Secondary level" (20%) and "higher qualified" (3%).

Availability of facilities by the woman sericulture respondents on their land holding and availability of rearing houses revealed that 23% of the respondents were having less than 0.5 acre of land, 47% with more than 0.5 acre to 1.0 acre, 23% with more than 1.0 acre to 2.0 acres and 7% respondents were having more than 2.0 acres of land holding. Of this, a majority of the respondents (57%) were having less than 0.5 acre of mulberry garden while 43% respondents were having upto 1.0 acre of mulberry garden of their total land holdings. Hence most of them were marginal farmers. Information on availability of rearing house showed that 90% of the farmers have no separate rearing houses. They were conducting rearing in their dwelling house itself. Data recorded on cosmopoliteness of the respondents showed that 66.6% were residing in the Panchayat / Block Office areas and 33.3% of the respondents were having sericulture office and bank facilities which indicate that most of the respondents do not have facilities with banking, agriculture and sericulture services.

While interviewing the women sericulture respondents, it was observed that other than sericulture, 67% of the total families were engaged in businesses other than the sericulture activities. Most of the male members of the women respondents were engaged as hired labourers, in agriculture and small businesses. Data on woman participation and sharing of works with their male members of the families in various operations of sericulture *i.e.*, Mulberry cultivation and Silkworm rearing are presented below (Table 1).

Mulberry cultivation

In mulberry cultivation practices considering 11 activities (Table 1) such as, digging/ tilling, cutting preparation, plantation, weeding, pruning etc. showed that 40% of the respondents were engaged in digging / tiling of plots, 35% in mulberry plantation, 43.7% in weeding, 36.2 % in application of manure, 42.5% in application of chemical fertilizers, 51.2% in leaf harvest, 48.7% in leaf transport from field to rearing house, 21.3% in pruning and 33.7% in cleaning of mulberry plots. However, none of the respondents performed propagation of cuttings and irrigation of mulberry plots. In Murshidabad and Malda districts women did not participate in mulberry cultivation practices except digging, weeding and leaf harvest in Murshidabad. It was noticed that in Meghalaya and Tripura states, almost all the activities in terms of mulberry cultivation practices were performed by them except preparation of cuttings and irrigation in mulberry.

Silkworm rearing

Distribution of work sharing pattern of women in silkworm rearing and related activities considering 13 items (Table 2) showed that the woman folks were engaged more in all the activities except procurement of dfls and marketing of cocoons/silk. Women were involved fully in all the activities related to silkworm rearing such as, disinfection of rearing house & appliances, incubation of silkworm layings, brushing, feeding of chawki & late age worms, bed cleaning, mounting care etc in all the locations studied. While, involvement in procurement of dfls was recorded at 40% and 20% in case of Meghalaya and Tripura respectively.

Awareness on sericulture technologies

Data recorded on knowledge of women on improved technologies of sericulture revealed that lack of proper knowledge about improved technologies coupled with low level of literacy, their knowledge (5 point scoring scale) was very good to good (2.3-2.9) on disinfection of rearing house & appliances, use of silkworm bed disinfectant, diseases of silkworm and maintenance of temperature and humidity in rearing room; good (3.0 - 3.4) on improved mulberry variety, name of silkworm breeds/ hybrids (3.0), diseases of silkworm & their control measures (3.0), maintenance of hygiene during rearing (3.0), number of crops per year and diseases of mulberry plant (3.1) and on application of plant growth regulator (3.4); good to poor (3.5) on mulberry disease/pest control measures and control of uzifly (3.6); poor (4.1) on dose of manure application and poor to worst (4.6) (Table 2). The Spearman's rank correlation for consistency among 20 respondents from each area in scoring of individual items was calculated between all pairs of them. It was found all rank correlations for each of the 4 locations to be highly significant. Hence it is inferred that judgment of each of the respondents to be consistent and thoughtful.

Women empowerment and contribution in sericulture

In the society, money flows from the richer section to the poorer section. For livelihood, the families engaged in farm activities basically earn from as many as possible sources and meet their day-to-day expenditure. As per information recorded from the women sericulture respondents, family income comes from various sources, such as, agriculture in their

small piece of land, sericulture, small business, income through hire labourer by their male family members etc.

Table 1: Participation of women in sericulture activities (% of share)

Activities	Murshidabad	Malda	Meghalaya	Tripura	Over all
Digging / tilling of plot	15	0	100	45	40.00
Preparation of mulberry cuttings	0	0	0	0	0.00
Plantation of mulberry	0	0	100	40	35.00
Weeding	25	0	100	50	43.75
Irrigation	0	0	0	0	0.00
Application of manure	0	0	100	45	36.25
Application of chemical fertilizers	0	0	80	90	42.5
Leaf harvesting	15	0	100	90	51.25
Leaf carrying from mulberry plots	0	0	100	95	48.75
Pruning of mulberry plants	0	0	45	40	21.25
Cleaning of mulberry plots	0	0	100	35	33.75
Disinfection of rearing house	100	100	100	100	100.00
Disinfection of rearing appliances	100	100	100	100	100.00
Procurement & transportation of dfls	0	0	40	20	15.00
Incubation of dfls	100	100	100	100	100.00
Black boxing of dfls	100	100	100	100	100.00
Brushing of dfls	100	100	100	100	100.00
Feeding of worms (Chawki)	100	100	100	100	100.00
Feeding of worms (Late age)	100	100	100	100	100.00
Moulting care	100	100	100	100	100.00
Application of bed disinfectants	100	100	100	100	100.00
Bed cleaning	100	100	100	100	100.00
Mounting care	100	100	100	100	100.00
Marketing / cocoon transaction	0	0	0	0	0.00
Average Score	**48.12**	**45.83**	**81.88**	**68.75**	**61.14**

Table 2: Distribution of sericulture respondents by their knowledge on improved sericulture technologies

Activities	Murshidabad	Malda	Meghalaya	Tripura	Over all
Name of improved mulberry variety	3.9	3.8	2.8	2.9	3.3
Recommended dose of FYM $ha^{-1}yr^{-1}$	4.4	4.0	4.3	3.9	4.1
Recommended dose of chemical fertilizers $ha^{-1}yr^{-1}$	4.4	4.6	4.8	4.7	4.6
Diseases of mulberry plants	3.2	3.3	2.9	3.1	3.1
Mulberry disease & pest control measures	3.8	3.6	3.0	3.4	3.5
Application of plant growth regulators	3.8	3.7	3.1	3.2	3.4
Disinfection of rearing house & appliances	2.1	2.5	2.2	2.4	2.3
Name of silkworm breeds $hybrid^{-1}$	3.3	3.4	2.3	2.9	3.0
No. of crops $year^{-1}$	3.0	3.0	3.4	2.9	3.1
Diseases of silkworm	2.2	2.3	3.4	3.4	2.8
Silkworm disease & pest control measures	3.0	2.9	3.3	2.9	3.0
Use of silkworm bed disinfectant	3.0	3.0	2.4	2.6	2.8
Maintenance of temp. & RH in rearing house	3.0	2.8	3.0	2.9	2.9
Maintenance of hygiene during rearing house	3.0	2.6	3.2	3.1	3.0
Uzifly control	3.0	2.8	4.8	3.8	3.6
Average Score	**3.3**	**3.2**	**3.2**	**3.2**	**3.2**

In this study, it was observed that the involvement of women was in agriculture farm, sericulture and household activities. It was estimated that during silkworm rearing, about 32% of a total day works was spent by the women respondent in different sericulture activities. Information recorded from the respondents that on an average total annual income from sericulture was around Rs.18,500, of which, they have saved the expenditure on mandays for mulberry cultivation and silkworm rearing by using the family labourer which on an average was Rs.30,200 per annum. In sericulture enterprises,

decision taken by the women themselves was very meagre, restricted to the activities such as, quality of mulberry leaves for silkworms, maintenance of hygiene in rearing houses, disease incidence in silkworms, moulting care and quality of cocoons which corroborated the study of Raju *et al.*, (1997). In other sericulture activities such as, mulberry cultivation as a whole, assessing the availability of mulberry leaves and the quantity of silkworm layings, cocoon / silk yarn marketing etc. were taken by their male family members. In was estimated that only 27% of the woman respondents recorded decisions on sericulture enterprises jointly alongwith their male members of the family, while remaining 63% were dependent on their male family members. Distribution of family income on various aspects and decision taken thereof by the women in sericulture enterprise was mainly on their livelihood, health care, children education and other exigencies. Regarding decision taken on distribution of income to various family expenditures, it was observed that 30% of the total respondents took their decision jointly on sericulture activities, 100% in monetary distribution on family expenditure and around 44.8% both for sericulture activities and monetary distribution (Table 3).

Table 3: Empowerment of women in decision making

Empowerment	No. of respondents	%
Decision on the sericulture activities	24	30
Decision on monetary distribution on family expenditure	80	100
Both sericulture activities and money distribution	56	44.8

For many social reasons, the role of women in sericulture remains unrecognized and unrewarded even though the percentage of their work share in sericulture activities are notable, therefore, the conception on contribution of women in the society restricting themselves mostly in their house hold activities is not fair. It is fact that the women in the society particularly the rural women are actively involved in almost all the activities in their family works and in assisting the male member of family to uplift the economy. Sericulture being a rural enterprise participation of women is higher. Low level of literacy, lack of awareness on the improved technologies of mulberry cultivation and silkworm rearing, poor level of perception on the technologies and also lack of empowerment are the major constraints faced by the women in sericulture. Despite the constraints, the women participate in the activities of sericulture, thus provide ample scopes for their development through awareness, capacity building through imparting training / demonstration of technologies, processes, techniques etc. and guiding for empowerment so that the society will be socio-economically uplifted and the country as well.

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